

seconds and repeat the diving at frequent intervals.¹ Suddenly a male swims vigorously at another with flapping wings, making the water boil, and soon each male is ardently courting. He spreads and cocks his tail, puffs out the feathers of his head and cheeks, extends his bill straight out in front close to the water and every now and then throws it back with a bob in a sort of reversed bow. All the time he swims rapidly, and, whereas in feeding the group were all swimming the same way in an orderly manner, the drakes are now nervously swimming back and forth and in and out through the crowd. Every now and then there is a commotion in the water as one or more drakes dive with a splashing of water only to come up again in pursuit or retreat. As the excitement grows a drake flaps his wings frequently and then jumps from the water and flies low with outstretched neck towards a duck who has listlessly strayed from the group. He alights beside her precipitately, sliding along on his tail, his breast and head elevated to their utmost extent and held erect. He bobs nervously. And so it goes.

RHYTHMICAL SINGING OF VEERIES.

BY HENRY OLDYS.

In a recent article in 'The Independent' I made the following statement:

"Thrush songs are especially worthy of careful investigation, because of their advanced character. Those of superior Olive-backed, Hermit, and Wood Thrushes, disclose a rhythmical arrangement very satisfying to the human ear; and from incomplete study of the singing of the Veery, I am inclined to believe that the oboe phrases of this member of the thrush family will, in some instances, be found, on close attention, to show a similar arrangement."

Since this article was published (20th July, 1914) I have been so

¹ A series of four dives timed with a stop watch in the Back Bay Basin averaged 18 seconds, varying between 14 and 20 seconds. At Lynn Beach of four dives three were 17 seconds, one, 15 seconds, in duration.

fortunate as to have noted several verifications of this prediction, the first as recently as May 19, 1915. I was at Rhinebeck, N. Y., at the charming home of Mr. Maunsell S. Crosby, an enthusiastic student of bird life. In the late afternoon, as we were standing beside a large pond (or small lake) on his place, our attention was attracted by the singing of a Veery. Other Veery songs had greeted our ears, but this one particularly excited our interest because of its containing a short phrase with a closing trill. We had listened but a moment or two when it became evident that this shorter phrase occurred with regular frequency, following two other phrases, which differed from each other slightly and had each its fixed place in the song.

On our making this discovery I directed my efforts toward obtaining an exact record of the song. It is extremely difficult to record all the minor notes of a Veery or a Hermit Thrush, and the record I secured is not perfect in this respect. It shows, however, the principal notes — those that give the song its character — and is sufficiently correct to represent the phrases substantially as they were sung. The following is the record I made:



All the notes were given with the Veery 'burr,' which I have indicated by the wavy lines above them. While I listened the song was repeated fifteen or twenty times and, so far as I observed, without variation.

The proximity of the dinner hour compelled a suspension of my study of the song sooner than I should have wished; but I contented myself with the hope that I might have an opportunity to resume the study on the following morning before breakfast. In this I was disappointed, for although Mr. Crosby and I were on the scene very early the next morning, the bird remained absolutely silent during our entire stay in the vicinity. Perhaps it had passed on to the north.

No further opportunity presented itself for investigation of Veery music until a lecturing trip for the University of Minnesota

brought me to Taylor's Falls, Minn., on June 9. At this attractive spot beside the Dalles of the St. Croix I was so fortunate as to make several interesting ornithological notes, including the record of two rhythmical Veery songs. The first bird was singing in regular order three phrases, each with different closing notes, like those of the Rhinebeck Veery, and also with an additional opening note in the third phrase, as in the case of the Rhinebeck bird. To show the rhythm alone these phrases may be freely syllabled thus:

Wee-te-a-wee, te-a-wee, te-a-wee:

Wee-te-a-wee, te-a-wee, te-a-wee:

Wee-te-te-a-wee, te-a-wee, te-a-wee.

I did not take the notes, chiefly because of the presence in the vicinity of a voluble Rose-breasted Grosbeak, an energetic brass band with a particularly enthusiastic bass drummer, and a merry-go-round with the usual depressing music, traction-engine whistle, and other noise producers.

The second bird was uttering a song of *four* phrases, in which the first and third phrases were identical and ended with A flat; the second phrase was similar to these, but closed with G flat (both of these closing notes being long); and the fourth phrase was noticeably shorter than any of the others and was finished with an indeterminate broken chord.

The following day I was at Moose Lake, Minn., a point about forty miles south of Duluth. Veeries were plentiful and were singing freely. Every song I listened to critically consisted of three different phrases, repeated always in the same order. Another point of resemblance to the Rhinebeck song was that the first part of each phrase consisted of two higher notes and the second of a broken chord on a lower pitch repeated without further change of pitch. In the notations of Veeries' songs made by other musicians the closing notes have sometimes been represented as chords; but I believe that what these listeners heard were not actual chords, but broken chords, the separate notes of which were uttered so rapidly as to cause them to seem to blend in complete harmony.

The Veery's singing offers a very difficult study to the recorder of bird music; but because of its very difficulty it is especially tempting to an enthusiastic and conscientious explorer of this

neglected field of natural history. Because of its difficulty, also, it should be undertaken only by trained musicians. For while much excellent work in describing and differentiating bird songs has been done by naturalists who lack musical training, yet the final word as regards birds' notes must be spoken by the musician, whose education fits him to observe important features that are quite certain to escape the attention of one whose musical ear has never been cultivated. In lectures and writings I have persistently endeavored to arouse the interest of musicians in this fascinating and important phase of ornithological research; and while my efforts have met with some success, yet there is pressing demand for many, many more properly equipped students.

Let me take this opportunity to say a few words about the noting of bird songs. Adequate appreciation is not given by either naturalists or musicians to the fact that a number of problems, not inferior in importance to any to which ornithologists are devoting their energies, require for their solution careful and exhaustive study of the utterances of birds by competent musicians. The question of the extent of the part played by inheritance in specific songs is on a par with similar questions relating to migration, nest-building, feeding, and other activities of birds. The matter of the growth of vocal ability in young birds (which has scarcely been touched) and that of seasonal activity in singing are fully as important as the allied questions of plumage growth and seasonal moult — in each case development follows normally definite lines dependent on the previous evolutionary history of the species. And such problems as the reason for song, the origin of song, the reason for governance of bird music by laws of rhythmical sequence, similar to — often identical with — laws that govern human music, open up broad fields of research which in interest and value stand unrivaled; for they inseparably connect themselves with one of the greatest, most interesting, and least understood problems of psychology — the origin and development of æsthetic taste in man.

The young student of bird songs need not be discouraged if he finds his records out of accord with those of other observers; nor should he sweepingly condemn the work of others because of such discrepancy. Because of the great individual diversity of bird

songs; the impossibility in the case of some songs, of making more than merely suggestive records (though such suggestive records have a value, often important); and the extreme difficulty, in certain other instances, of securing a perfect record, legitimate differences of interpretation will arise in this branch of ornithology, as in all other branches. Such discrepancies will gradually disappear as knowledge progresses.

But all such points, be it understood, can best be discussed by musical scientists, rather than non-musical scientists, whose lack of musical information often leads them to offer frivolous and absurd objections. (One such criticism in the case of a published record of a Bewick's wren song showed ignorance of the fundamental fact that the key of a song merely indicates its pitch, and was based on the ludicrous notion that it would be more difficult for a bird to sing in six flats than in one!)

The study of thrush music is of especial value, owing to its advanced character in comparison with most bird music; and it is my earnest hope that musicians living within the breeding ranges of different members of the thrush family throughout the world may become interested in making permanent records of noteworthy songs, and thus preserve them to science.